1601 Market Street
Suite 2555
Philadelphia, PA 19103

215.563.2122 PHONE
215.563.2339 FAX

www.trcsolutions.com

March 28, 2016

Sherrel Henry
Remedial Project Manager
Emergency and Remedial Response Division
US Environmental Protection Agency, Region 2
290 Broadway, 20th Floor
New York, NY 10007-1866

Re: Shieldalloy Metallurgical Corporation Superfund Site
Newfield, NJ
In the Matter of CERCLA Docket No. 02-2010-2017
Response to Comment on, and Addendum to OU2 Pre Design Investigation Results Report

Dear Ms. Henry:

TRC Environmental, Inc. (TRC) appreciates U.S. Environmental Protection Agency's (EPA's) March 2, 2016 comments on TRC's Operable Unit 2 (OU2) Pre Design Investigation (PDI) Results Report (dated November 2015) for the Shieldalloy Metallurgical Corporation (SMC) Superfund Site (Site), located in Newfield, New Jersey. TRC Companies, Inc. and SMC executed the Administrative Order of Consent (AOC) for OU2 with the EPA on March 10, 2015 in Newfield, New Jersey.

This letter, and its enclosure, serves as both a response to the EPA comments, and an addendum to the OU2 PDI Results Report.

Upon regulatory approval of this submission, TRC will prepare/submit the OU2 Preliminary Design.

Please let us know if you would like to discuss the project.

Regards,
TRC

Patrick J. Hansen
Project Coordinator
Enclosure
Cc: David White, SMC
Donna Gaffigan, NJDEP

457969

ENCLOSURE
TRC's March 2016 Response to March 2, 2016 EPA Comments on, and Addendum to the SMC OU2 PDI Results Report

General Comments #1
EPA Comment:
E*PA have concerns regarding how impact to groundwater (IGW) from metal contamination in soils in the Eastern Storage Area (ESA) of the site is being considered. In short, the statement that the existing soil contamination (metals) poses negligible impacts to groundwater is not supported by the approved methods used to make IGW determinations. Rather, the determination seems to be based on groundwater quality samples. This concern is made more important because the determination as to whether soil contamination can effect groundwater will inform the cap remedy, whether a gravel cap is adequate or whether a more impermeable cap should be chosen instead because it is deemed more protective. Note that NJDEP allows capping (low permeability) of inorganic compounds, please refer to the NJDEP's Capping of Inorganic and Semi-Volatile Contaminants for the Impact to Ground Water Pathway Technical Guidance, Version 1.0, March 2014 for additional information. The Capping technical guidance can be found at the following link: http://www.nj.gov/dep/srp/guidance/rs/igw_capping.pdf.*
TRC Response:
The PDI Results Report is addended herein to indicate that an asphalt cap will be provided at the Eastern Storage Area.

General Comment #2
EPA Comment:
Statements in the Report referring to chromium and vanadium as important compounds or of significant interest should be replace with contaminant(s) of concern (COCs).
TRC Response:
These terms are herein referred to as COCs.

Specific Comments

1. **Executive Summary, PDI Results, Eastern Storage Area, 3rd ¶, Page d**

EPA Comment:
The statement is made that "Lead has some exceedance of NJGWQS but may be providing false positives due to turbid samples from an old well (Well K)." If available, please provide information on well construction to determine whether Well K meets the Data Quality Objectives. Perhaps this well should be abandoned and a new one installed.
TRC Response:
The construction details for well K are included in the OU1 Routine Monitoring Plan, and are as follows: 2" diameter steel well, installed in 1971, with a depth of 46' BGS, and a 10' screen length. Top of inner casing is at elevation 99.18 fmsl.

2. **Executive Summary, Conclusions, Eastern Storage Area, # 1, Page f**

EPA Comment:
Please specify which two metals (arsenic and lead) are being referenced for additional discussion and MNA trends analysis.
TRC Response:
Both arsenic and lead have been added to the OU1 Routine Monitoring. See response to #6 below.

3. **Section 2.2, Site History, Last ¶, Page 3**

EPA Comment:
"*Chromium and vanadium are important compounds concerning OU2." This statement should be modified to indicate that they are contaminants of concern based on the risk assessments*.
TRC Response:
Chromium and vanadium are contaminants of concern based on the risk assessment.

4. **Section 2.4.1, Facility Soils, Eastern Storage Area, 1st ¶, Page 4**

EPA Comment: *Please insert "surface" after 196.*
TRC Response: Acknowledged.

5. **Section 2.4.1.2, Impact to Groundwater, Page 7**

EPA Comment:
The statement that non-detection of metals observed in monitoring wells (such as well IWC-1) downgradient of the ESA is an indication that the metal contamination in soils (originally found in ESA) is not impacting groundwater. This is incorrect. NJDEP's IGW methods are used to predict future groundwater impacts. The NJDEP's IGW methods evaluate the potential for contamination in the vadose zone to leach into underlying groundwater at concentrations greater than groundwater standards. Furthermore, in methods that do involve evaluating groundwater quality to determine the potential for

IGW (use of SESOIL/AT123D Model), the groundwater samples need to be obtained directly downgradient of the location of the point source to specifically follow the migration pathway in the groundwater system. Thus, it is inappropriate to base IGW determinations on general site groundwater quality data. In lieu of additional analyses/discussions, consideration should be given for selection of an impermeable cap.

TRC Response:

The PDI Results Report is addended herein to indicate that an asphalt cap will be provided at the Eastern Storage Area.

6. **Section 2.4.1.2, Lead, Last 2 sentences, Page 8**

EPA Comment:

"The unfiltered result is therefore more likely to reflect actual aqueous conditions. Therefore, the filtered sample suggests that the groundwater is most likely below the NJGWQS at this location." These sentences do not agree. EPA and NJDEP only use unfiltered samples to evaluate exposure to surface and drinking water. Filtered samples are not acceptable and further, Well K likely should no longer be used. In addition, the OU1 Routine Ground Water Monitoring Plan (GWMP), August 2014, should be revised as necessary to discuss lead and sampling techniques as appropriate.

TRC Response:

TRC understands and acknowledges that only unfiltered groundwater samples are used to evaluate against standards. The discussion of filtered samples is provided to provide additional information and context to the discussion.

The groundwater issues will be addressed in OU1. The OU1 Routine Ground Water Monitoring Plan summary table (Table 3) has been revised (Revision 2) to include the metals of interest, attached, and will be used starting with the April 2016 sampling event. The unfiltered results for well K will be sampled and reported moving forward. More specifically, the OU1 Monitoring Reports will present the data, and include appropriate synthesis of metals over time and of data quality, and can make recommendation if well replacement is appropriate.

7. **Section 3.2.1, Upper Hudson Branch Sediment, Page 17**

EPA Comment:

It does not appear that the sediment samples were screened for radionuclides. As such, the preliminary design should include a radiation screening workplan. Once approved, the radiation screening can be performed and reported in the 90% design.

TRC Response:

A radionuclide screening workplan will be submitted, under separate cover, focusing on waste management and disposal issues.

8. **Section 2.4.1.2, Summary , Page 9 and Sections 4.1.1, 3rd ¶, Page 20**

EPA Comment:

It is stated at several places in the report that conditions at facility soils have been consistent for many years and that the soil to groundwater pathway is considered to be at a relatively steady state. However, to assert that a migration pathway between a point source in the soil and the groundwater is at steady

state is to characterize the migration, solute transport, and leaching processes that occur in the vadose zone in an unrealistic way: Even though contamination in the soil (unsaturated zone) may be long standing, the potential for a relatively mobile contaminant to leach out of its source zone and migrate deeper into the soil column, and ultimately into the groundwater, is largely affected by the delivery of recharge and attendant chemical reactions over time. In fact, the quantity and duration of recharge delivered to a given area is quite variable over time as is the tendency for contaminant to leach out of the soils, where leaching is prone to occur on an episodic basis. Thus, the soil to groundwater pathway is effected by transient processes and needs to be considered in a temporal way.

To document that that the soil in the Eastern Storage Area is "essentially untouched" and in a "relatively steady state" site-specific data must be included. In lieu of collecting the additional site-specific data, consideration should be given for selection of an impermeable cap.

TRC Response:

The PDI Results Report is addended herein to indicate that an asphalt cap will be provided at the Eastern Storage Area.

9. **Section 4.1.5, ESA Cap Material Recommendation, #1, Page 22**

EPA Comment:

The information provided does not clearly portray a steady state condition from soils to groundwater. The recommendation to use a permeable (gravel) cap is not sufficiently supported with available data. In Section 4.1.3 it states that the ratios of total metals to SPLP leachate results vary widely and that there was poor correlation. This could suggest that perhaps some of the metals leach strongly to groundwater while others do not. As per the NJDEP's Development of Site-Specific Impact to Ground Water Soil Remediation Standards Using the Synthetic Precipitation Leaching Procedure, Version 3.0, November 2013, page 10, it would be more transparent if a table containing total contaminant in soil, total contaminant in leachate and a leachate criterion for each of the COCs was included in the Report. The SPLP technical guidance can be found at the following link: http://www.nj.gov/dep/srp/guidance/rs/splp_guidance.pdf. In lieu of this, consideration should be given for selection of an impermeable cap for the ESA.

TRC Response:

The PDI Results Report is addended herein to indicate that an asphalt cap will be provided at the Eastern Storage Area.

10. **Section 4.2.1 Upper Hudson Branch, Page 23**

EPA Comment:

The OU2 Supplemental Remedial Investigation Report and the OU2 Record of Decision, had a more detailed discussion of the extent of vertical contamination in the Upper Hudson, this information should be included in the PDI report.

TRC Response:

The scope included vertical characterization in the pond, so the PDI Results Report included more detailed discussion of these vertical results. For purposes of completeness, the following discussion is added to 4.2.1 for the other areas of Upper Hudson Branch, based on the discussions in the ROD and RI/FS.

"Chromium, vanadium, lead, copper, and nickel exceed remediation goals in the Hudson Branch sediments extending to a depth of 0.5-2 ft bgs in Hudson Branch (channel and overbank). Metal concentrations decrease with depth. The ROD indicated that a Remedial Action Objective is to prevent exposure to contaminated sediments in Hudson Branch that pose an unacceptable ecological risk. The ROD-defined remedy is comprised of excavating Hudson Branch sediments to a depth of 12 inches below ground surface (bgs) in the channel and a depth of 6 inches bgs outside the channel to meet Remedial Goals to eliminate ecological risk."

11. **Section 5.1, Eastern Storage Area Findings Summary, Number 4, Page27**

EPA Comment:
The conclusion that a gravel cap is appropriate for the site is not sufficiently supported with available data. If the use of a gravel cap cannot be supported by the available data, then, consideration should be given for selection of an impermeable cap for the ESA.
TRC Response:
The PDI Results Report is addended herein to indicate that an asphalt cap will be provided at the Eastern Storage Area.

12. **Section 5.2.1, Upper Hudson Branch, Page 27**

EPA Comment:
This section indicated that additional sediment samples were collected to further delineate the extent of potential contamination in the Upper Hudson Branch. However, there was no information regarding wetlands in the document. A discussion should be included to indicate if this further delineation impacted additional wetland areas.
TRC Response:
The delineated wetlands are shown on the results figure (Figure 4). The PDI delineation work resulted in no total wetland acreage than that presented in the OU2 ROD (i.e. the proposed area is still less than 5 acres).

13. **Figure 3**

EPA Comment:
The Notes at the bottom of Figure 3 indicate all results in mg/kg unless otherwise specified, however, SPLP results are ug/L as indicated in Table 2. The correct units must be identified on Figure 3.
TRC Response:
The note at the bottom of Figure 3 is addended to indicate that SPLP results are ug/l.

14. **Figure 4**

EPA Comment:
Sediment sampling location SD-13N-X contains contaminant concentrations exceeding the remediation goals and appears to be on the edge of the area which is considered for remedial action. However, since there isn't a sample beyond this location delineating the elevated concentration, it may be appropriate to re-evaluate this area during the remedial action.
TRC Response:
This area will be reevaluated during the remedial action.

15. **Figure 5**

EPA Comment:
Three soil sample locations are shown as green triangles with no data boxes, and Table 6 includes results for four samples that are not shown on Figure 5. All data from Table 6 must be presented on Figure 5.
TRC Response:
Adjusted Figure 5 is attached. Unintendedly, the data boxes and some data was left out during conversion to PDF and hard copy versions.

16. **Appendix A and Appendix C**

EPA Comment:
Please note that NJDEP conducted its own validation of the hexavalent chromium data and found it to be acceptable.
TRC Response:
Acknowledged.

TABLE 3 [Revision 2, March 2016]
OPERABLE UNIT 1 (OU-1)
ROUTINE GROUNDWATER MONITORING PROGRAM
SHIELDALLOY METALLURGICAL CORPORATION
NEWFIELD, NEW JERSEY

Well ID[1]	Location	Spatial Position	Analytes				
			Total & Hexavalent Chromium	Selected Metals[2], [3]	CVOCs[4]	Field Indicators[5]	Water Level
Upper Zone of Aquifer							
SC-14S	Facility	Background Location	•	•		•	•
K	Facility	Center of Plume	•	•	•	•	•
Layne	Facility	Center of Plume	•		•	•	•
SC-6S	Car Wash	Center of Plume	•	•	•	•	•
U7-A	Farm Parcel	Center of Plume	•			•	•
U8-C	Farm Parcel	Center of Plume	•			•	•
SC-2I	Farm Parcel	Center of Plume	•	•	•	•	•
SC-20S	Facility	Center of Plume			•	•	•
IWC-1	Facility	Historical Center of Plume	•	•		•	•
IWC-2	Facility	Historical Center of Plume	•	•		•	•
B	Facility	Fringe of Plume	•		•	•	•
SC-10S	Car Wash	Fringe of Plume	•			•	•
SC-38I	Car Wash	Fringe of Plume	•			•	•
U8-E	Farm Parcel	Fringe of Plume	•			•	•
SC-23S	Facility	Fringe of Residual Plume	•	•		•	•
IW-1	Farm Parcel	Sentinel Location	•			•	•
SC-3S[6]	Farm Parcel	Sentinel Location	•		•	•	•
W-4	Facility	Sentinel	•			•	•
Lower Zone of Aquifer							
W3D		Background Location	•		•	•	•
W-9	Facility	Center of Plume	•		•	•	•
PZ-3	Facility	Former Source Area	•			•	•
IWC-5	Facility	Center of Plume	•			•	•
SC-6D	Car Wash	Center of Plume	•		•	•	•
SC-10D	Car Wash	Center of Plume	•			•	•
SC-41D	Farm Parcel	Center of Plume	•			•	•
SC-2D (R)	Farm Parcel	Center of Plume	•		•	•	•
LPW-8	Farm Parcel	Center of Plume	•			•	•
L8-A2	Farm Parcel	Center of Plume	•			•	•
L8-D2	Farm Parcel	Center of Plume	•			•	•
SC-5D/115	Farm Parcel	Fringe of Plume	•		•	•	•
SC-26D	Weymouth Rd	Fringe of Plume	•			•	•
SC-28D	Farm Parcel	Fringe of Plume	•		•	•	•
SC-3D(R)[6]	Farm Parcel	Sentinel Location	•		•	•	•
SC-24D	Farm Parcel	Sentinel Location	•			•	•
SC-35D	Farm Parcel	Compliance Location			•	•	•
SC-42D	Farm Parcel	Sentinel Location	•			•	•

Notes:

	Sampling Frequency:	Reporting Frequency
Years 1 - 2	Semiannual	Annual
Years 3 - 5	Annual	Biannual (i.e., year 4)
Years 6 - 10	Biannual	Biannual (Years 6, 8 and 10)
Years 11- 30	Every 5 years	Every 5 years

[1] - The ongoing remediation and plume studies have shown that the plume is currently under active remediation conditions. As the aquifer returns to equilibrium, the sampling network may be reduced with EPA notification and approval.

[2] - 12 Selected metals include aluminum, antimony, arsenic, beryllium, boron, cadmium, lead, manganese, mercury, nickel, silver, and vanadium. These metals will be sampled from upper zone wells to evaluate concentrations of these analytes in shallow groundwater potentially associated with soils. [**Revision 2 note: the following metals were added based on direction from the OU2 work: arsenic, boron, cadmium, lead , mercury, and silver**].

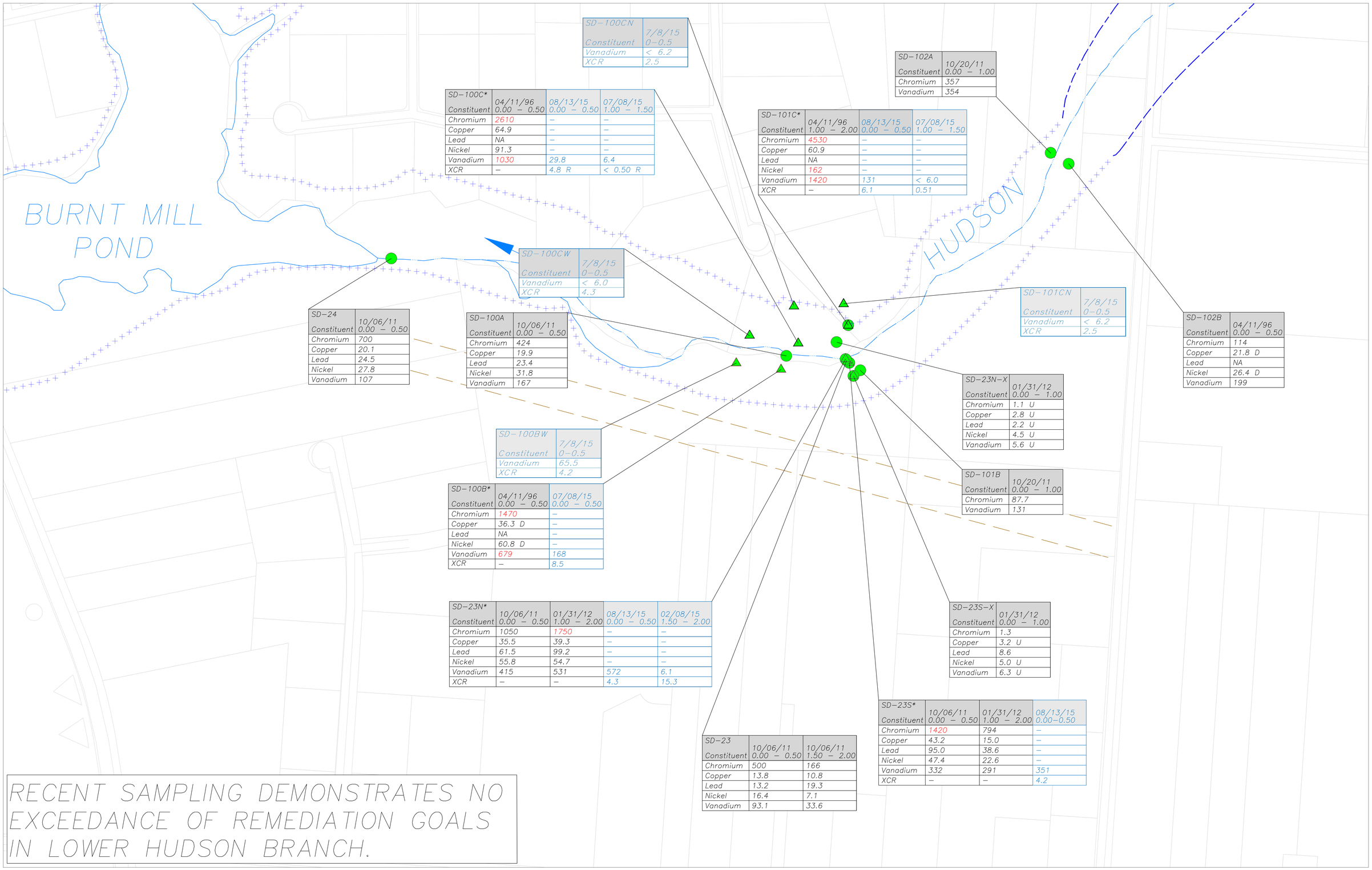
[3]- If concentrations of these selected metals are found to be below EPA/NJDEP groundwater criteria for two consecutive monitoring events, these analyte will be dropped from the monitoring program.

[4] - CVOCs will include trichloroethene. Cis-1,2-dichloroethene, trans-1,2-dichloroethene, and vinyl chloride may be analyzed for a period of time to provide some data. Wells downgradient of the facility may discontinue CVOC analysis at an appropriate point in the future. TRC will notify and seek EPA approval at that time.

[5] - Field Indicators = pH, Temperature, Specific Conductance, Dissolved Oxygen, Redox Potential, and turbidity.

[6] - If concentrations of total chromium at SC-3S or SC-3D (R) increase above 70 µg/L, SC-1S and/or SC-1D/110 will be added to the monitoring program for analysis of total and hexavalent chromium.

If, during implementation of the monitoring program it is statistically determined that certain concentrations are increasing, TRC will recommend and implement appropriate steps, such as additional sampling/analysis or modeling. Similarly, if certain wells are statistically determined to provide little useful data, TRC may recommend and implement a reduction in well sampling.



SD-100CN Constituent	7/8/15 0-0.5
Vanadium	< 6.2
XCR	2.5

SD-100C* Constituent	04/11/96 0.00 – 0.50	08/13/15 0.00 – 0.50	07/08/15 1.00 – 1.50
Chromium	2610	–	–
Copper	64.9	–	–
Lead	NA	–	–
Nickel	91.3	–	–
Vanadium	1030	29.8	6.4
XCR	–	4.8 R	< 0.50 R

SD-102A Constituent	10/20/11 0.00 – 1.00
Chromium	357
Vanadium	354

SD-101C* Constituent	04/11/96 1.00 – 2.00	08/13/15 0.00 – 0.50	07/08/15 1.00 – 1.50
Chromium	4530	–	–
Copper	60.9	–	–
Lead	NA	–	–
Nickel	162	–	–
Vanadium	1420	131	< 6.0
XCR	–	6.1	0.51

SD-100CW Constituent	7/8/15 0-0.5
Vanadium	< 6.0
XCR	4.3

SD-101CN Constituent	7/8/15 0-0.5
Vanadium	< 6.2
XCR	2.5

SD-102B Constituent	04/11/96 0.00 – 0.50
Chromium	114
Copper	21.8 D
Lead	NA
Nickel	26.4 D
Vanadium	199

SD-24 Constituent	10/06/11 0.00 – 0.50
Chromium	700
Copper	20.1
Lead	24.5
Nickel	27.8
Vanadium	107

SD-100A Constituent	10/06/11 0.00 – 0.50
Chromium	424
Copper	19.9
Lead	23.4
Nickel	31.8
Vanadium	167

SD-23N-X Constituent	01/31/12 0.00 – 1.00
Chromium	1.1 U
Copper	2.8 U
Lead	2.2 U
Nickel	4.5 U
Vanadium	5.6 U

SD-100BW Constituent	7/8/15 0-0.5
Vanadium	65.5
XCR	4.2

SD-101B Constituent	10/20/11 0.00 – 1.00
Chromium	87.7
Vanadium	131

SD-100B* Constituent	04/11/96 0.00 – 0.50	07/08/15 0.00 – 0.50
Chromium	1470	–
Copper	36.3 D	–
Lead	NA	–
Nickel	60.8 D	–
Vanadium	679	168
XCR	–	8.5

SD-23N* Constituent	10/06/11 0.00 – 0.50	01/31/12 1.00 – 2.00	08/13/15 0.00 – 0.50	02/08/15 1.50 – 2.00
Chromium	1050	1750	–	–
Copper	35.5	39.3	–	–
Lead	61.5	99.2	–	–
Nickel	55.8	54.7	–	–
Vanadium	415	531	572	6.1
XCR	–	–	4.3	15.3

SD-23S-X Constituent	01/31/12 0.00 – 1.00
Chromium	1.3
Copper	3.2 U
Lead	8.6
Nickel	5.0 U
Vanadium	6.3 U

SD-23 Constituent	10/06/11 0.00 – 0.50	10/06/11 1.50 – 2.00
Chromium	500	166
Copper	13.8	10.8
Lead	13.2	19.3
Nickel	16.4	7.1
Vanadium	93.1	33.6

SD-23S* Constituent	10/06/11 0.00 – 0.50	01/31/12 1.00 – 2.00	08/13/15 0.00-0.50
Chromium	1420	794	–
Copper	43.2	15.0	–
Lead	95.0	38.6	–
Nickel	47.4	22.6	–
Vanadium	332	291	351
XCR	–	–	4.2

RECENT SAMPLING DEMONSTRATES NO EXCEEDANCE OF REMEDIATION GOALS IN LOWER HUDSON BRANCH.

SOURCE:
BASE MAP FROM JAMES M. STEWART, INC., LAND SURVEYORS, PHILADELPHIA, PA. AND ON-SITE OBSERVATIONS.

LACROCE PROPERTY BOUNDARY BASED ON TAX MAP-CITY OF VINELAND, OCTOBER 1, 1971.

ORTHOPHOTOS FROM NEW JERSEY IMAGE WAREHOUSE WEB SITE, PUBLISHED 7/31/2003 WITH PHOTO TAKEN IN 2002.

FLOODPLAIN BASED ON FEMA MAP PROPOSED OCTOBER 2015

Compound	Sediment Remediation Goal (mg/kg)
Chromium	1,275
Copper	223
Lead	203
Nickel	107
Vanadium	574

Notes:
mg/kg - milligrams per kilogram (dry weight).
NS – Not specified.

RESULTS BOX

LOCATION Constituent	DATE DEPTH	PAST SAMPLING	2015 SAMPLING
ANALYTE	EXCEEDENCE		
ANALYTE	RESULT		

NOTES:
*** - BASED ON CURRENT SAMPLING RESULTS, OLDER DATA WITH EXCEEDENCES ARE CONSIDERED FALSE POSITIVES**
R - SAMPLE WAS RENANALYZED
B - RESULT GREATER THAN OR EQUAL TO MDL BUT LESS THAT THE REPORTING LIMIT
<- COMPOUND WAS NOT DETECTED AT SPECIFIED QUANTITATION LIMIT.

ALL UNITS IN MG/KG UNLESS OTHERWISE SPECIFIED.
MG/KG - MILLIGRAMS PER KILOGRAM (DRY WEIGHT, PPM).

LEGEND

- STREAM
- DELINEATED WETLAND
- ELECTRICAL RIGHT OF WAY
- ESTIMATED 100 YR FLOODPLAIN BASED ON TRC HYDOLOGIC MODELING
- ESTIMATED 100 YEAR FLOODPLAIN BASED ON PROPOSED 2014 CUMBERLAND COUNTY FIRM MAP
- PREVIOUS SAMPLE LOCATION (BEFORE 2015) WITH CONCENTRATION BELOW REMEDIATION GOAL
- PREVIOUS SAMPLE LOCATION (BEFORE 2015) WITH CONCENTRATION ABOVE REMEDIATION GOAL
- 2015 SAMPLE LOCATION WITH CONCENTRATION BELOW REMEDIATION GOAL
- 2015 SAMPLE LOCATION WITH CONCENTRATION ABOVE REMEDIATION GOAL
- PREVIOUS SAMPLE LOCATION (BEFORE 2015) AND 2015 SAMPLE LOCATION WITH CONCENTRATIONS BELOW REMEDIATION GOAL

0 100' 200'
GRAPHIC SCALE

TRC ENVIRONMENTAL CORP.
1601 Market Street, Suite 2555
Philadelphia, PA 19103

LOWER HUDSON BRANCH
SEDIMENT SAMPLE LOCATIONS

SHIELDALLOY METALLURGICAL CORPORATION
35 SOUTH WEST BLVD
NEWFIELD, NEW JERSEY

JOB NUMBER: 112434

DD/TW	DATE: MARCH 2016	FIGURE: 5